

Listed Waterbody: **San Lorenzo River Estuary**



Listed Condition: **Pathogens**

Designated Beneficial Uses: Contact and Non-contact Recreation (REC-1 and REC-2), Wildlife Habitat (WILD), Cold Freshwater Habitat (COLD), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Commercial and Sport Fishing (COMM), and Shellfish Harvesting (SHELL)

Watershed Location: Eastern portion of Santa Cruz County, drains directly to the ocean

Year added to California's CWA Section 303(d) List of Impaired Waters -1994

Preliminary Schedule for San Lorenzo River Estuary – Pathogen Impairment Investigation

Task	Completion Date	Notes
Phase 2: Project Plan	December, 2003	Active
Phase 3: Data Collection and Analysis Use Attainability Analysis	April 2005	*contact staff to submit data
Phase 4: Preliminary Project Report: Numeric Targets & Source Analysis	September 2005	
Phase 5: Project Report	May 2006	
Phase 6: Regulatory Action	October 2006	

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Problem Background:

The shellfish harvesting beneficial use requires the most stringent water quality objective. The *Water Quality Control Plan, Central Coast Region* (Basin Plan) contains the following bacteria objective for waters with shellfish harvesting beneficial use (SHELL):

“At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution test or 330/100 ml when a three-tube decimal dilution test is used.”

The Basin Plan contains the following bacteria objective for waters with contact water recreation (REC-1):

“Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml.”

Often, available datasets do not contain five samples in a 30-day period, so the portion of the objective that is evaluated is that “no more than ten percent of total samples during any 30-day period exceed 400/100 mL.” One can note that, in instance where fewer than five samples were

collected in 30 days, the “ten percent” threshold is exceeded if any one sample exceeds 400 / 100 mL.

Basis for Listing:

San Lorenzo River Estuary was listed based on several reports indicating high bacteria concentrations. These include “An Evaluation of Wastewater Disposal and Water Quality in the San Lorenzo River Watershed” (Sept 1989, Environmental Health Service, Health Services Agency, County of Santa Cruz). In that report, the sampling location “Rivermouth @ Trestle” was reported to exceed the REC-1 fecal coliform objective from October 1985-September 1988. Another report titled “San Lorenzo River Watershed Management Plan Update Evaluation of Water Quality Issues and Proposed Investigations, Task 4.1 Report” (undated, Environmental Health Service, Health Services Agency, County of Santa Cruz) indicates the sampling location “Rivermouth @ Trestle” was reported to also exceed the REC-1 fecal coliform objective from October 1990-September 1991 and from October 1992-September 1993.

Current Information:

San Lorenzo River is still considered impaired based upon the following graphs.

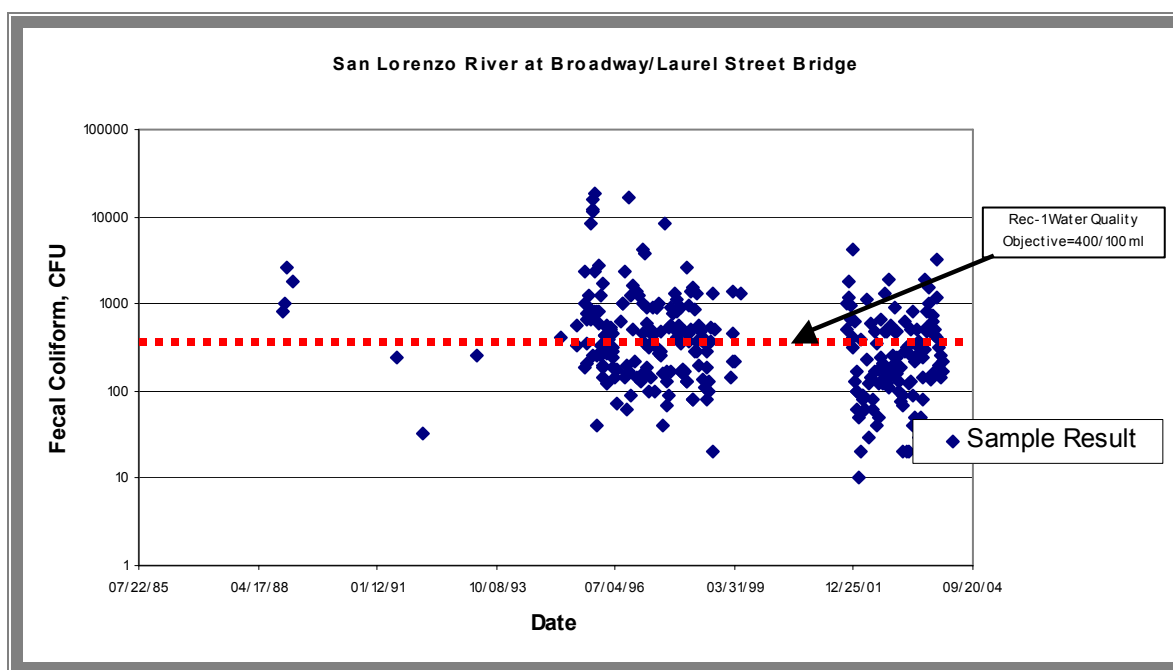


Figure 1. San Lorenzo River at Broadway/Laurel Street Bridge

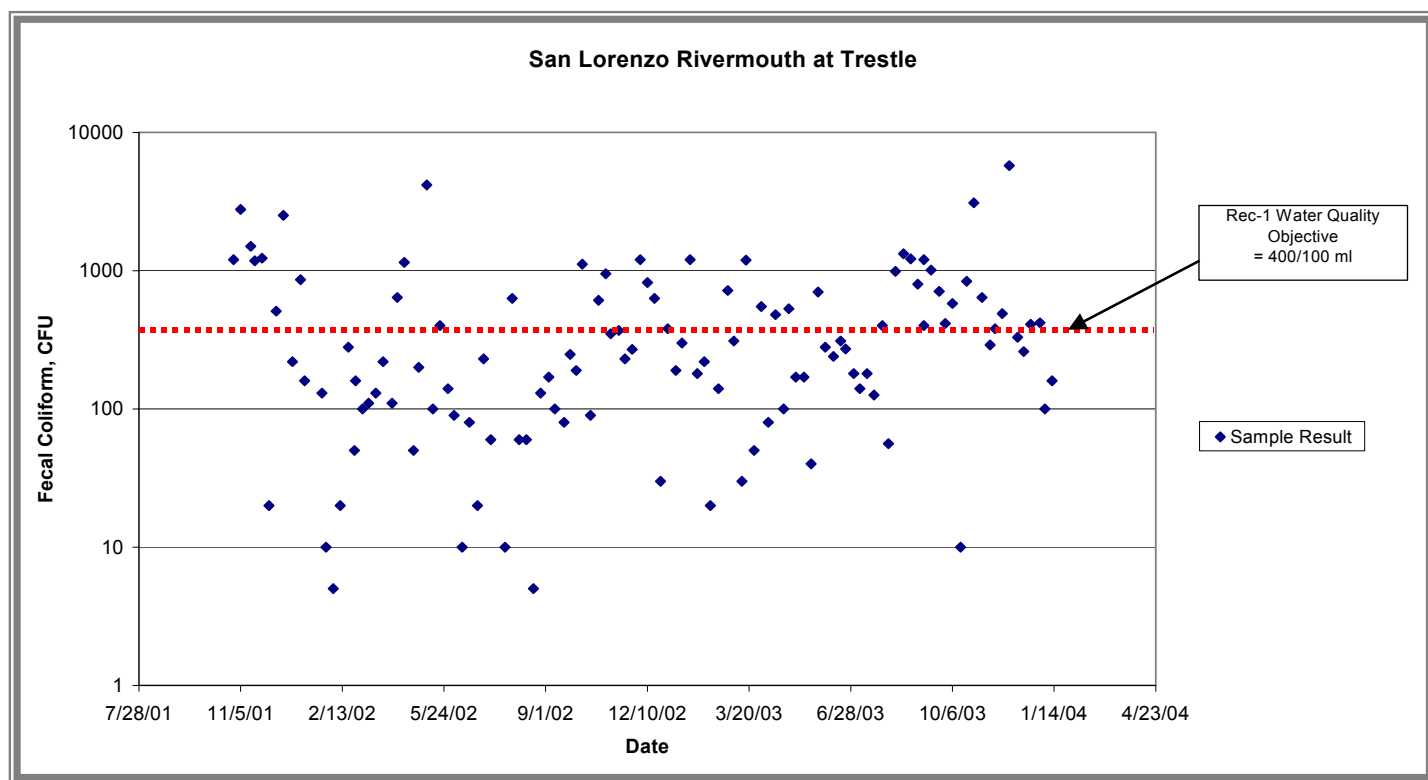


Figure 2. San Lorenzo Rivermouth at Trestle

Both Figures above indicate that water quality violations during all seasons.

What next:

Dr. Samadpour performed DNA analysis in the winter of 2002-03 to assess sources of pathogens. Preliminary findings indicate the following pathogen sources at the Rivermouth¹:

<u>Source</u>	<u>Percent Contribution of Sources of <i>E.coli</i> Bacteria</u>
Avian	39%
Bovine	1%
Canine	5%
Feline	0%
Horse	1%
Human	30%
Rodent	4%
Unknown	15%
Wildlife	4%

Birds and humans are significant sources of fecal contamination. Storm drains are considered at the primary source. Sewage is expected to enter the estuary through spills and seeps.¹ Although homeless populations are also a potential source, previous sampling did not reveal a significant increase in bacteria levels downstream of homeless encampments.

The County of Santa Cruz received Proposition 13 grant funds from the State of California. The Proposition 13 contract is titled, "Identification and Characterization of Non-Point Sources of Pollution Affecting Santa Cruz County Beaches." A product of this contract is a report that includes best management practices or management measures implemented as part of the project in evaluating, preventing or reducing nonpoint source pollution." The contract does not *require* (emphasis added) the County to implement any best management practices or management measures.

Regional Board staff will manage the County of Santa Cruz Proposition 13 contract which is expected to provide the necessary data to identify sources and may provide the necessary data to perform corrective action. The goal of this project is to reduce the potential for area beach closure due to bacteria from human sources and to determine the extent to which contamination may result from leakage from sanitary sewers. Regional Board staff assume this project will provide the implementation plan to achieve load allocations. In the event this project does not provide all the information a TMDL requires, additional Regional Board investigation may be necessary.

Appropriate Beneficial Use

The Regional Board listed the San Lorenzo River Estuary for shellfish harvesting on June 11, 1976. Santa Cruz County staff indicate shellfish harvesting has never occurred within the estuary. Staff will perform a Use Attainability Analysis to remove this beneficial use from the

¹ County of Santa Cruz Health Services Agency, Environmental Health Service *Assessment of Sources of Bacterial Contamination at Santa Cruz County Beaches, Assessment and Evaluation Plan, Task 4; Monitoring and Reporting Plan, Task 5; and Health Risk Study Plan, Task 7.1, Draft* September 2003

Basin Plan before proceeding with TMDL tasks. A Use Attainability Analysis is necessary because shellfish harvesting appears to be inappropriate or the use does not exist.

If the shellfish beneficial use is removed, the appropriate beneficial use to protect is the water contact recreation beneficial use. The water contact recreation beneficial use requires the most stringent water quality objective. The *Water Quality Control Plan, Central Coast Region* (Basin Plan) contains the following bacteria objective for waters with contact water recreation (REC-1):

“Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml.”

Project Plan: Below is a brief overview of the project steps that can currently be projected.

Phase 3. Data Collection and Analysis; Use Attainability Analysis

Who	Regional Board (RB) staff – project lead scientist (A. Carpenter) Stakeholders: provide technical assistance
Action Steps & Schedule	<ul style="list-style-type: none"> • April 2004-March 2005: Use Attainability Analysis <ul style="list-style-type: none"> April 2004-June 2004: Perform preliminary assessment to determine if a Use Attainability Analysis should be performed. ○ June 2004-October 2004: Evaluate the actual occurrence of shellfish harvesting ○ November 2004-February 2005: Evaluate historical water quality (since November 28, 1975, if available) to determine if water quality necessary to support shellfish harvesting has been achieved ○ February 2005-March 2005: Prepare draft Use Attainability Analysis <p>The tasks below are associated with the County of Santa Cruz Proposition 13 contract, “Identification and Characterization of Non-Point Sources of Pollution Affecting Santa Cruz County Beaches.” A product of this contract is a report that includes best management practices or management measures implemented as part of the project in evaluating, preventing or reducing nonpoint source pollution.” The contract does not <i>require</i> (emphasis added) the County to implement any best management practices or management measures.</p> <ul style="list-style-type: none"> ○ January 2004-March 2005: Participate in Prop 13 Grant TAC meetings and review quarterly reports ○ September 2004: Review maps, videos, and findings of sewer pipe evaluations ○ October 2004: Review Prop 13 Analytical Results Report ○ November 2004: Review Health Risk Study Results ○ January 2005: Review Draft Final Report ○ March 2005: Review Final Prop 13 Grant Project Report <ul style="list-style-type: none"> • April 2005: Develop Data Collection and Analysis Report including draft Use Attainability Analysis and Revised Problem Statement. This report will present data collected for the Prop 13 Grant, data from the last five years of Regional Board/County files, and CCAMP. This report will document water quality conditions and historic uses related to shellfish harvesting.
Cost (PY & \$)	<p><u>Staff Resources:</u> for FY 04-05: 0.4 PY</p> <p><u>Contract Resources:</u> = \$173,560 already established for the Proposition 13 contract. No additional contract resources are needed at this time.</p> <p><u>Other:</u> None</p>
Issues	<ul style="list-style-type: none"> • Regional Board staff will manage the County of Santa Cruz Proposition 13 contract which is expected to provide the necessary data to identify sources and may provide the necessary data to perform corrective action. The goal of this project is to reduce the potential for area beach closure due to bacteria from human sources and to determine the extent to which

	<p>contamination may result from leakage from sanitary sewers. Regional Board staff assume this project will provide the implementation plan to achieve load allocations. In the event this project does not provide all the information a TMDL requires, additional Regional Board investigation may be necessary.</p> <ul style="list-style-type: none"> • Staff is relying on the assumption that we will be successful in demonstrating that the shellfish harvest beneficial use has never been attained, such that setting targets for protection of REC-1 beneficial use will be adequate. If staff is unsuccessful in making this case, a TMDL will need to be developed based on protection of shellfish harvesting. This may result in extending the time frame needed to develop an adequate implementation plan. The Proposition 13 contract is expected to propose actions that will result in attaining water contact recreation water quality standards. However, this contract is not expected to address shellfish harvesting water quality standards.
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Phase 4. Preliminary Project Report: Numeric Targets and Source Analysis

Who	Regional Board staff – project lead scientist (A. Carpenter) Stakeholders – Provide technical assistance
Action Steps & Schedule	<ul style="list-style-type: none"> • October 2004: Selection of Numeric Targets: RB staff will utilize Basin Plan Bacteria Objectives as the numeric target. Coordinate with Basin Planning Staff for possible bacteria objective revision to Basin Plan. RB Basin Planning staff indicate they hope to have a new pathogen objective adopted by the Regional Board by summer or fall of 2004. • May 2005-July 2005: Perform source analysis relating locations of target exceedences to determine probable pathogen sources causing exceedences; complete Source Analysis • August 2005 – September 2005: Summarize Numeric Targets and describe Source Analysis in written Report
Cost (PY & \$)	<p><u>Staff Resources</u>: – 0.1 PY for FY 05-06</p> <p><u>Contract Resources</u>: no RB3 contract money needed</p>
Issues	RB staff will manage the County of Santa Cruz Proposition 13 contract, “Identification and Characterization of Non-Point Sources of Pollution Affecting Santa Cruz County Beaches” which will provide the necessary data to identify sources and should provide the necessary data to perform corrective action. The goal of this project is to reduce the potential for area beaches closure due to bacteria from human sources and to determine the extent to which contamination may result from leakage from sanitary sewers. RB3 staff assume this project will provide the necessary information for the TMDL. In the event this project does not provide all the information a TMDL requires, additional Regional Board investigation may be necessary.

Phase 5. Project Report:

Who	Regional Board staff – project lead scientist (A. Carpenter) Stakeholders: Stakeholder will review Preliminary Project Report
Action Steps & Schedule	<ul style="list-style-type: none"> September 2005- November 2005: Prepare a draft Project Report with TMDL, allocations and corrective measures necessary to attain compliance with water quality standards. This plan will include an implementation and monitoring plan. December 2005: Send to Stakeholders for technical advice. January 2006: Consider stakeholder comments and revise report if appropriate February 2006: Prepare a final Project Report, including TMDL, allocations, implementation and monitoring plan; Prepare other documents necessary for proposed regulatory action (e.g. resolution, CEQA documents, etc) February 2006- May 2006: Obtain Scientific Peer Review (and other legal or technical review) and prepare response to comments
Cost (PY & \$)	<u>Staff Resources</u> : FY 05-06: 0.1 PY, for FY 06-07: 0.3 PY <u>Contract Resources</u> : = no RB3 contract money estimated at this time
Issues	None at this time.

Phase 6.. Regulatory Action(s):

Who	Regional Board staff – project lead scientist (A. Carpenter) Stakeholders: Stakeholder will review Preliminary Project Report to provide technical assistance
Action Steps & Schedule	<ul style="list-style-type: none"> May 2006 – October 2006: Prepare documents for regulatory approval and present to Regional Board for Action
Cost (PY & \$)	<u>Staff Resources</u> : FY 07-08: 0.2 PY: Staff resources to develop report and respond to review comments <u>Contract Resources</u> : = no RB3 contract money estimated at this time
Issues	None at this time.

Potential Future Activities (as needed)**Budget and Schedule Uncertainties:***Budget: short-term:**Long-term:*